

transistors, each of said first plurality of thin film transistors including a first active region; and

a peripheral driver circuit[,] having a second plurality of thin film transistors for driving the first plurality of thin film transistors, each of said second plurality of thin film transistors including [an] a second active region,

wherein a metal element is included at concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$ in the second active region of at least one of only the second plurality of thin film transistors,

wherein each of the first and second plurality of thin film transistors has a channel forming region formed in [a monodomain region of] a semiconductor film with no grain boundary therein, [said monodomain region being regarded as a single crystal region,] and

wherein the semiconductor film has a thickness of 200 to 2000

Å.

6. (Three Times Amended) A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors, each of said first plurality of thin film transistors including a first active region; and

a peripheral driver circuit having a second plurality of thin film transistors for driving the first plurality of thin film transistors, each of said second plurality of thin film transistors including a second active region,

wherein a metal element is included at concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$ in the second active regions of at least one of only the second plurality of thin film transistors,

wherein each of the first and second active regions comprises a

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crystalline semiconductor film being doped with hydrogen and having [no or]
substantially no grain boundary therein, and
wherein the semiconductor film has a thickness of 200 to 2000

Å.

11. (Three Times Amended) A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors, each of said first plurality of thin film transistors including a first active region; and

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a peripheral driver circuit having a second plurality of thin film transistors for driving the first plurality of thin film transistors, each of said second plurality of thin film transistors including a second active region, wherein at least one second active region includes a metal element at concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$,

wherein at least one first active region includes a metal element at a different concentration from the second active region,

wherein each of the first and second active regions is formed in [a monodomain region of] a semiconductor film with no grain boundary therein, [said monodomain region being regarded as a single crystal region,] and

wherein the semiconductor film has a thickness of 200 to 2000

Å.

16. (Three Times Amended) A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film

transistors, each of said first plurality of thin film transistors including a first active region; and

a peripheral driver circuit having a second plurality of thin film transistors for driving the first plurality of thin film transistors, each of said second plurality of thin film transistors including a second active region, wherein at least one second active region includes a metal element at concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$,

wherein at least one first active region includes a metal element at a lower concentration than the second active region,

wherein each of the first and second active regions comprises a crystalline semiconductor film being doped with hydrogen and having [no or] substantially no grain boundary therein, and

wherein the semiconductor film has a thickness of 200 to 2000

Å.

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21. (Three Times Amended) A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors formed by a crystalline semiconductor film, [having crystallinity] each of said first plurality of thin film transistors including a first active region; and

a peripheral driver circuit having a second plurality of thin film transistors for driving the first plurality of thin film transistors, each of said second plurality of thin film transistors including [an] a second active region,

wherein a metal element is included at concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$ in the second active region of at least one of only the second plurality of thin film transistors,

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wherein the second active region of at least one of the second plurality of thin film transistor is formed in [a monodomain region of] a semiconductor film with no grain boundary therein, [said monodomain region being regarded as a single crystal region,] and

wherein the semiconductor film has a thickness of 200 to 2000

Å.

39. (Twice Amended) A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors, each of said first plurality of thin film transistors including a first active region; and

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a peripheral driver circuit having a second plurality of thin film transistors for driving the first plurality of thin film transistors, each of said second plurality of thin film transistors including [an] a second active region,

wherein a metal element is included at concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$ in the second active region of at least one of only the second plurality of thin film transistors,

wherein each of the first and second plurality of thin film transistor has a channel forming region formed in [a monodomain region of] a semiconductor film with no grain boundary therein, [said monodomain region being regarded as a single crystal region,]

wherein the semiconductor film includes a point defect of $1 \times 10^{16} \text{ cm}^{-3}$ or more, and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1×10^{15} to $1 \times 10^{20} \text{ cm}^{-3}$, and

wherein the semiconductor film has a thickness of 200 to 2000

Å.

40. (Twice Amended) A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors, each of said first plurality of thin film transistors including a first active region; and

a peripheral driver circuit having a second plurality of thin film transistors for driving the first plurality of thin film transistors, each of said second plurality of thin film transistors including a second active region,

wherein a metal element is included at concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$ in the second active regions of at least one of only the second plurality of thin film transistors,

wherein each of the first and second active regions comprises a crystalline semiconductor film [being doped with hydrogen and] having [no or] substantially no grain boundary therein,

wherein the semiconductor film includes a point defect of $1 \times 10^{16} \text{ cm}^{-3}$ or more, and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1×10^{15} to $1 \times 10^{20} \text{ cm}^{-3}$, and

wherein the semiconductor film has a thickness of 200 to 2000 Å.

41. (Twice Amended) A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors, each of said first plurality of thin film transistors including a first active region; and

a peripheral driver circuit having a second plurality of thin film transistors for driving the first plurality of thin film transistors, each of said

second plurality of thin film transistors including a second active region, wherein at least one second active region includes a metal element at concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$,

wherein at least one first active region includes a metal element at a different concentration from the second active region,

wherein each of the first and second active regions is formed in [a monodomain region of] a semiconductor film with no grain boundary therein, [said monodomain region being regarded as a single crystal region,]

wherein the semiconductor film includes a point defect of $1 \times 10^{16} \text{ cm}^{-3}$ or more, and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1×10^{15} to $1 \times 10^{20} \text{ cm}^{-3}$, and

wherein the semiconductor film has a thickness of 200 to 2000 Å.

42. (Twice Amended) A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors, each of said first plurality of thin film transistors including a first active region; and

a peripheral driver circuit having a second plurality of thin film transistors for driving the first plurality of thin film transistors, each of said second plurality of thin film transistors including a second active region, wherein at least one second active region includes a metal element at concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$,

wherein at least one first active region includes a metal element at a lower concentration than the second active region,

wherein each of the first and second active regions comprises a

crystalline semiconductor film [being doped with hydrogen and] having [no or] substantially no grain boundary therein,

wherein the semiconductor film includes a point defect of $1 \times 10^{16} \text{ cm}^{-3}$ or more, and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1×10^{15} to $1 \times 10^{20} \text{ cm}^{-3}$, and

wherein the semiconductor film has a thickness of 200 to 2000 Å.

43. (Twice Amended) A semiconductor circuit for an electro-optical device formed on a substrate comprising:

an active matrix circuit having a first plurality of thin film transistors formed by a crystalline semiconductor film [having crystallinity], each of said first plurality of thin film transistors including a first active region; and

a peripheral driver circuit having a second plurality of thin film transistors for driving the first plurality of thin film transistors, each of said second plurality of thin film transistors including [an] a second active region, wherein a metal element is included at concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$ in the second active region of at least one of only the second plurality of thin film transistors, [and]

wherein the second active region of at least one of the second plurality of thin film transistor is formed in [a monodomain region of] a semiconductor film with no grain boundary therein, [said monodomain region being regarded as a single crystal region,]

wherein the semiconductor film includes a point defect of $1 \times 10^{16} \text{ cm}^{-3}$ or more, and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1×10^{15} to $1 \times 10^{20} \text{ cm}^{-3}$, and

wherein the semiconductor film has a thickness of 200 to 2000

Å.

44. (Amended) A [device] circuit according to claim 1 wherein said semiconductor film comprises silicon.

45. (Amended) A [device] circuit according to claim 6 wherein said semiconductor film comprises silicon.

46. (Amended) A [device] circuit according to claim 11 wherein said semiconductor film comprises silicon.

47. (Amended) A [device] circuit according to claim 16 wherein said semiconductor film comprises silicon.

48. (Amended) A [device] circuit according to claim 21 wherein said semiconductor film comprises silicon.

49. (Amended) A [device] circuit according to claim 39 wherein said semiconductor film comprises silicon.

50. (Amended) A [device] circuit according to claim 40 wherein said semiconductor film comprises silicon.

51. (Amended) A [device] circuit according to claim 41 wherein said semiconductor film comprises silicon.

52. (Amended) A [device] circuit according to claim 42 wherein said semiconductor film comprises silicon.

53. (Amended) A [device] circuit according to claim 43 wherein said semiconductor film comprises silicon.

Please add new claims 54-72.

--54. A circuit according to claim 1 wherein said semiconductor film with no grain boundary therein is a monodomain semiconductor film.

55. A circuit according to claim 6 wherein said semiconductor film having no grain boundary therein is a monodomain semiconductor film.

56. A circuit according to claim 11 wherein said semiconductor film with no grain boundary therein is a monodomain semiconductor film.

57. A circuit according to claim 16 wherein said semiconductor film having no grain boundary therein is a monodomain semiconductor film.

58. A circuit according to claim 21 wherein said semiconductor film with no grain boundary therein is a monodomain semiconductor film.

59. A circuit according to claim 39 wherein said semiconductor film with no grain boundary therein is a monodomain semiconductor film.

60. A circuit according to claim 40 wherein said semiconductor film

having no grain boundary therein is a monodomain semiconductor film.

61. A circuit according to claim 41 wherein said semiconductor film with no grain boundary therein is a monodomain semiconductor film.

62. A circuit according to claim 42 wherein said semiconductor film having no grain boundary therein is a monodomain semiconductor film.

63. A circuit according to claim 43 wherein said semiconductor film with no grain boundary therein is a monodomain semiconductor film. boundary therein is a monodomain semiconductor film.

64. A circuit according to claim 39 wherein the semiconductor film includes carbon and nitrogen at a concentration of 1×10^{16} to $5 \times 10^{18} \text{ cm}^{-3}$, and oxygen at a concentration of 1×10^{17} to $5 \times 10^{19} \text{ cm}^{-3}$.

65. A circuit according to claim 40 wherein the semiconductor film includes carbon and nitrogen at a concentration of 1×10^{16} to $5 \times 10^{18} \text{ cm}^{-3}$, and oxygen at a concentration of 1×10^{17} to $5 \times 10^{19} \text{ cm}^{-3}$.

66. A circuit according to claim 41 wherein the semiconductor film includes carbon and nitrogen at a concentration of 1×10^{16} to $5 \times 10^{18} \text{ cm}^{-3}$, and oxygen at a concentration of 1×10^{17} to $5 \times 10^{19} \text{ cm}^{-3}$.

67. A circuit according to claim 42 wherein the semiconductor film includes carbon and nitrogen at a concentration of 1×10^{16} to $5 \times 10^{18} \text{ cm}^{-3}$, and oxygen at a concentration of 1×10^{17} to $5 \times 10^{19} \text{ cm}^{-3}$.

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68. A circuit according to claim 43 wherein the semiconductor film includes carbon and nitrogen at a concentration of 1×10^{16} to $5 \times 10^{18} \text{ cm}^{-3}$, and oxygen at a concentration of 1×10^{17} to $5 \times 10^{19} \text{ cm}^{-3}$.

69. A semiconductor device comprising:
an active region provided on an insulating surface, said active region being formed by a crystalline semiconductor film,
wherein said active region has no grain boundary therein,
wherein said active region includes a point defect of $1 \times 10^{16} \text{ cm}^{-3}$ or more and one of hydrogen and halogen element for neutralizing the point defect at a concentration of 1×10^{16} to $1 \times 10^{20} \text{ cm}^{-3}$, and
wherein said active region has a thickness of 200 to 2000 .

70. A device according to claim 69 wherein said semiconductor film is a silicon film.

71. A device according to claim 69 wherein said active region includes a metal element at a concentration not higher than $5 \times 10^{19} \text{ cm}^{-3}$ therein.

72. A device according to claim 69 wherein said active region includes carbon and nitrogen at a concentration of 1×10^{16} to $5 \times 10^{18} \text{ cm}^{-3}$, and oxygen at a concentration of 1×10^{17} to $5 \times 10^{19} \text{ cm}^{-3}$.--

REMARKS

The Official Action of October 22, 1997 was received in the parent of the instant CPA. Reconsideration and withdrawal of the rejections set forth therein are now respectfully requested for the reasons advanced in detail below.